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(54) D ssert composition

(57) A dessert composition which is pourable at ambient temperature but hardens to a brittle edible coating when applied to a frozen dessert comprises from 45% to 65% by weight of a mixture of vegetable oils, preferably cottonseed oil and coconut oil, from 10% to 35% by weight of sugar and from 5% to 20% by weight of dried milk powder together with conventional flavourings and colourings, water being substantially absent, the solids preferably having an average particle size below 20 microns.

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## SPECIFICATION

### Dessert composition

- 5 This invention relates to a dessert composition which is pourable at ambient temperature but hardens to a brittle edible coating when applied to a frozen dessert.

- A composition of this kind, described in  
10 British Patent Specification 1574286, comprises from 44% to 53% refined edible oil that is substantially entirely liquid at 70°F, from 28% to 38% sugar, optionally up to 9% milk solids, from 4% to 10% corn syrup  
15 solids and lecithin, from 1.8% to 2.4% hard crystallized emulsifier, from 0.4% to 1.7% moisture, and the remainder flavouring additives. A product according to this patent has been marketed, but suffers from various disadvantages; it is formulated using hydrogenated and fractionated oils which are rather expensive; it requires a specialised hard crystallized emulsifier to achieve rapid hardening; the solids in the composition tend to settle out  
20 of suspension, so the product requires extensive shaking or stirring prior to use; it is not readily pourable at temperatures much below 20°C; and it does not have a smooth mouthfeel (primarily due to the presence of coarse

tion to provide a dessert composition which overcomes these disadvantages.

- The present invention provides a dessert composition comprising from 45% to 65%,  
35 preferably from 55% to 65%, by weight of a mixture of a major proportion of a first vegetable oil melting below 5°C and a minor proportion of a second vegetable oil melting above 20°C, from 10% to 35%, preferably from  
40 10% to 30%, by weight of finely-divided sugar, and from 5% to 20% by weight of dried milk powder, the composition being pourable at 19°C onto a frozen dessert to form thereon a brittle edible coating.

- 45 The presence of water in the formulation affects the viscosity and stability. Water is, therefore, preferably substantially absent; the moisture content should preferably be not more than 1% by weight.

- 50 It is an advantage of this invention that compositions can be formulated using ordinary refined vegetable oils, without the need to use more expensive hydrogenated or fractionated oils. The oil used comprises a blend  
55 of major proportion of a first vegetable oil melting below 5°C, preferably below 0°C, such as refined cotton seed oil, soya bean oil or ground nut oil; with a minor proportion of a second vegetable oil melting above 20°C, such as refined coconut oil, palm kernel oil or some other lauric-acid-based oil. Dilatation tests indicate that the solids index (percentage of solids) of the oil blend should preferably be in the range 20% to 30% at 0°C to provide a  
60 brittle coating and not more than 4% at 19°C

- so that the composition shall be pourable. If the proportion of the first (low melting) oil is too high, then the composition may not set satisfactorily to a brittle solid at 0°C; if too  
70 low, the composition may not be pourable at the desired temperature. For a composition designed to be pourable at 19°C, it is possible to use as little as 50% of the first oil, a range of 50% to 80% of the first oil with from 50%  
75 to 20% of the second oil being preferred. A preferred composition which is pourable at 17°C contains 60% to 70% of the first oil, preferably cottonseed oil, together with from 30% to 40% of the second oil, preferably  
80 coconut oil. Mixtures of oils in a group may be used.

- Any dry sugar may be used in the composition; for example; sucrose, dextrose, fructose, or glucose or maltose syrup solids, or a mixture of such sugars.

- In a coating composition of this kind, it is important that its viscosity should be sufficiently high during the formation of the coat to prevent run-off before setting is complete. The  
85 physical chemistry of the improved "coatibility" and increased rate of setting of this composition, over the oil blend alone is not fully understood, but is probably related to its fat nucleation capacity, and the higher viscos-

- content and particle size. The presence of dried milk solids is also important to the final texture of the composition after pouring and coating a frozen dessert, providing a smoother  
100 mouthfeel, than otherwise. A preferred range of dried milk solids is from 10% to 20% by weight. Colouring and flavouring ingredients may be included in conventional amounts. For example; cocoa solids also to be finely divided, may be included in amount typically up to 10%, preferably 4% to 8% by weight.  
105 Preservatives may be included. Emulsifiers may be included, but are not required.

- Compositions of the present invention may readily be made by warming the vegetable oil blend, adding the dry ingredients with continuous stirring, and passing the mixture through a ball mill or other suitable mill under conditions to produce a desired particle size. The  
110 solids particle size in chocolate is typically 20 to 40 microns, and compositions with a solids particle size in this range are satisfactory if used immediately. However, they tend to settle out on storage. It is therefore preferred to continue milling until an average solids particle size below 20 microns, typically in the range 1 to 10 microns is achieved. It is found that compositions according to the invention in which at least 50% of the particles have a  
115 diameter less than 5 microns, are storage stable over long periods without showing any significant tendency to settle out, and have a particularly smooth mouthfeel.

- Alternatively, the dry solids, particularly for  
120 example sugar and cocoa solids may be dry-  
130

ground separately, preferably under cryogenic conditions and then added to the oil blend.

The final composition however, should be such that the solids average particle size is still below 20 microns.

In practice, this composition dependent upon solids content and actual particle size may have rheological properties which are influenced by the rate of shear in some commercial machine filling operations e.g. piston-orifice, such that there is some permanent loss of viscosity. This effect may however be compensated by filling at a slightly elevated temperature (about 40°C) into containers from which the composition is to be eventually dispensed, and allowing the temperature to fall to ambient.

The following example illustrates the invention.

<i>Example</i>	<i>By Weight</i>
Refined cottonseed oil	39%
Refined coconut oil	21%
Sugar	24%
Cocoa solids	6%
Dried Skimmed Milk	10%

The cottonseed and coconut oils were mixed, melted and heated to 30°C. The sugar, cocoa solids and dried skimmed milk were added with continuous stirring. The mixture was passed through a ball mill until 60% of the particles were less than 5 microns in diameter (by direct particle measurement).

The resulting composition is storage stable over an extended period, without appreciable settling out of the solid components. It is pourable at 17°C, and when poured onto ice cream rapidly solidifies thereon to form a brittle solid coating that has a smooth texture similar in appearance and taste to milk chocolate confectionery.

#### CLAIMS

1. A dessert composition comprising from 45% to 65% by weight of a mixture of a major proportion of a first vegetable oil melting below 5°C and a minor proportion of a second vegetable oil melting above 20°C, from 10% to 35% by weight of finely divided sugar, and from 5% to 20% by weight of dried milk powder, the composition being pourable at 19°C onto a frozen dessert to form thereon a brittle edible coating.

2. A dessert composition as claimed in claim 1, wherein the mixture of vegetable oils is present in a proportion of from 55% to 65% by weight and the finely-divided sugar is present in a proportion of from 10% to 30% by weight.

3. A dessert composition as claimed in claim 1 or claim 2, wherein the moisture content is not more than 1% by weight.

4. A dessert composition as claimed in any one of claims 1 to 3, wherein the first

vegetable oil is at least one of refined cottonseed oil, soya bean oil and ground nut oil.

5. A dessert composition as claimed in any one of claims 1 to 4, wherein the second vegetable oil is refined coconut oil, palm-kernel oil or other lauric-acid-based oils or a mixture of such oils.

6. A dessert composition as claimed in any one of claims 1 to 5, wherein the solids index of the mixture of vegetable oils is from 20% to 30% at 0°C and not more than 4% at 19°C.

7. A dessert composition as claimed in any one of claims 1 to 6, wherein the mixture of vegetable oils consists of 50% to 80% of the first oil with from 50% to 20% of the second oil.

8. A dessert composition as claimed in any one of claims 1 to 7, wherein the mixture of vegetable oils consists of 60% to 70% of cottonseed oil with from 40% to 30% of coconut oil.

9. A dessert composition as claimed in any one of claims 1 to 8, wherein the proportion of dried milk powder is from 10% to 20% by weight.

10. A dessert composition as claimed in any one of claims 1 to 9, wherein there is also present up to 10% by weight of finely divided cocoa solids.

11. A dessert composition as claimed in any one of claims 1 to 10, consisting essentially of the mixture of vegetable oils, the finely divided sugar, and the dried milk powder, optionally together with colouring and/or flavouring agents in conventional amounts.

12. A dessert composition as claimed in any one of claims 1 to 11, wherein the average solids particle size is below 20 microns.

13. A dessert composition as claimed in claim 12, wherein at least 50% of the solid particles have a diameter less than 5 microns.

14. A dessert composition as claimed in claim 1 and substantially as hereinbefore described in the specific Example.

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